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PCT/US03/31364  
Attorney Case L3800-02

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

INTERNATIONAL APPLICATION NO.: PCT/US03/31364  
IN RE APPLICATION OF: LESLIE A. JARDINE  
INTERNATIONAL FILING DATE: 02 OCTOBER 2003  
TITLE: AMINE CONTAINING CEMENT  
PROCESSING ADDITIVES  
ATTORNEY CASE NO.: L3800-02

**RESPONSE TO WRITTEN OPINION**

**(RULE 66.8 AND 66.9)**

MAIL STOP PCT, Attn: IPEA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Written Opinion (PCT Rule 66) mailed August 4, 2004, in the above-identified application, Applicants submit the following amendments pursuant to Rules 66.8 and 66.9 and request that they be entered into the application in the form of Substitute Pages 12-13.

*Amendments to the claims begin on page 2 of this document.*

*Written Statement and Remarks explaining amendments and substitute pages begin on page of this document.*

*Substitute Page 12 is attached at the end of this document.*

**CERTIFICATE OF EXPRESS MAILING (37 CFR §1.10)**

I hereby certify that this correspondence is being deposited with the Express Mail Service of the United States Postal Service, under number EV 222840308 US with sufficient postage in an envelope addressed to: MAIL STOP PCT, Attn: IPEA/US Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450 on September 30, 2004.

  
Craig K. Leon, Esq.

Sept 30, 2004  
Signature Date

**Claims (showing amendments)**

1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (currently amended) A method for enhancing grinding efficiency in a cement grinding process, comprising: introducing, into the grinding of cement clinker to produce cement, ~~tetrahydroxylethylethylene diamine~~ an ~~ethylene diamine~~ or derivative thereof; and an alkanolamine selected from the group consisting of triethanolamine, triisopropanolamine, and diethanolisopropanolamine, the ratio of said ~~tetrahydroxylethylethylene diamine~~ to said alkanolamine being 95:5 to 5:95 based on weight, and the dosage of said amines to cement being 0.001% s/s to 0.5% s/s.
8. (cancelled)
9. (currently amended) A composition provided by the method of claim 7 ~~8~~.
10. (cancelled)
11. (currently amended) The method of claim 7 ~~10~~ wherein the dosage of said amines to cement is 0.01% s/s to 0.1% s/s.
12. (cancelled)
13. (currently amended) The composition of claim 9 ~~12~~ wherein tetrahydroxylethylethylene diamine is present in the amount of 20-30% and diethanolisopropanolamine is present in the amount of 80-70%, said percentages based on total weight of said composition.
14. (original) The composition of claim 13 ~~12~~ ~~further~~ comprising triethanolamine.
15. (cancelled)

16. (new) The method of claim 7 comprising incorporating tetrahydroxylethylethylene diamine in the amount of 28-38%, triethanolamine in the amount of 9-19%, and diethanolisopropanolamine in the amount of 53-63%, said percentages based on weight of total amines.

17. (new) The method of claim 7 wherein the incorporation of said tetrahydroxylethylethylene diamine and triethanolamine enhance Blaine fineness of cement produced from the grinding of said cement clinker.

18. (new) The method of claim 7 wherein said grinding of said cement clinker occurs in closed-circuit grinding wherein coarse ground material is returned into the mill for further grinding, the incorporation of said tetrahydroxylethylethylene diamine and triethanolamine decreasing the amount of coarse material returned to the mill for further grinding.

**Written Statement**

Claims 1-15 were originally filed. Claims 1-6, 8, 10, 12, and 15 are cancelled. New claims 16-18 are added. Therefore, claims 7, 9, 11, 13, 14, and 16-18 are pending, and claims 7, 9, 11, and 13 are amended as discussed in the remarks section below. Thus, pending claims are renumbered in the attached Substitute Page 12 as follows:

Original/New	7	9	11	13	14	16	17	18
Renumbered as:	1	2	3	4	5	6	7	8

**Remarks**

In the Written Opinion mailed August 4, 2004, claims 1-3 were said to lack an inventive step over US 4,473,405 of Gerber in view of FR 2485949A1 and US 5,084,103. Although claims 1-6 are cancelled to avoid this rejection, Applicant believes that these references do not impede patentability of any original or amended claims in the specification, since none of these references teach or suggest a combination of tetrahydroxylethylethylene diamine with alkanolamines during cement grinding. Any statements in the references to the effect that an additive can be added before, during, or after mixing of addition of water to cement does not suggest that a specific combination of additives be combined in the grinding of clinker to provide cement. Accordingly, Applicant believes that the objection under PCT Article 33(3) is overcome and should be withdrawn.

Claim 7 is amended to describe that the method enhances "grinding efficiency" in a cement grinding process, as supported at page 3, lines 1-4, and elsewhere. Claim 7 is also amended to recite tetrahydroxylethylethylene diamine in combination with an alkanolamine selected from the group consisting of triethanolamine, triisopropanolamine, and diethanolisopropanolamine, and the ratios of these components, as supported at page 4, lines 24-30.

Claims 9, 11, and 13 are amended to correct claim dependencies.


New claim 16 describes the use of tetrahydroxylethylethylene diamine in the amount of 28-38%, triethanolamine in the amount of 9-19%, and diethanolisopropanolamine in the amount of 53-63%, as supported at page 11, lines 8-11.

New claim 17 depends on claim 7 and describes that the incorporation of tetrahydroxylethylene diamine and triethanolamine enhance Blaine fineness of cement produced from the grinding of clinker, as supported in the Examples set forth beginning on page 6.

New claim 18 depends on claim 7 and further describes that the grinding of cement clinker occurs in closed-circuit grinding wherein coarse ground material is returned into the mill for further grinding, and the incorporation of the tetrahydroxylethylene diamine and triethanolamine decrease the amount of coarse material returned to the mill for further grinding, as supported at page 9, example 3.

### **CONCLUSION**

As the claim amendments presented above and set forth in Substitute Page 12 are believed to place the application into form for allowance and do not introduce any new matter into the above-identified application, the issuance of a favorable International Preliminary Examination Report is requested.

  
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L3800-02PCTWrittenOpinion

**SUBSTITUTE PAGE**

1. A method for enhancing grinding efficiency in a cement grinding process, comprising: introducing, into the grinding of cement clinker to produce cement, tetrahydroxylethylene diamine or derivative thereof and an alkanolamine selected from the group consisting of triethanolamine, triisopropanolamine, and diethanolisopropanolamine, the ratio of said tetrahydroxylethylene diamine to said alkanolamine being 95:5 to 5:95 based on weight, and the dosage of said amines to cement being 0.001% s/s to 0.5% s/s.

2. A composition provided by the method of claim 1.

3. The method of claim 1 wherein the dosage of said amines to cement is 0.01% s/s to 0.1% s/s.

4. The composition of claim 2 wherein said tetrahydroxylethylene diamine is present in the amount of 20-30% and said diethanolisopropanolamine is present in the amount of 80-70%, said percentages based on total weight of said amines.

5. The composition of claim 4 comprising triethanolamine.

6. The method of claim 1 comprising incorporating tetrahydroxylethylene diamine in the amount of 28-38%, triethanolamine in the amount of 9-19%, and diethanolisopropanolamine in the amount of 53-63%, said percentages based on weight of total amines.

7. The method of claim 1 wherein the incorporation of said tetrahydroxylethylene diamine and triethanolamine enhance Blaine fineness of cement produced from the grinding of said cement clinker above additive dosage of said amines when incorporated separately.

8. The method of claim 1 wherein said grinding of said cement clinker occurs in closed-circuit grinding wherein coarse ground material is returned into the mill for further grinding, the incorporation of said tetrahydroxylethylene diamine and triethanolamine decrease the amount of coarse material returned to the mill for further grinding.